TEMIC

Siliconix

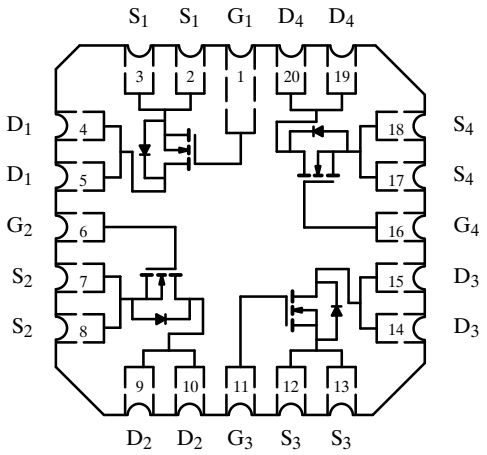
Si8956AZ/883

Quad N-Channel Enhancement-Mode MOSFET

Product Summary

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
20	0.1 @ V_{GS} = 10 V	5
	0.2 @ V_{GS} = 4.5 V	1

LCC-20



Top View

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current[a]	T_A = 25°C	I_D	5	A
	T_A = 100°C		3	
Pulsed Drain Current[a]		I_{DM}	14	
Continuous Source Current (Diode Conduction)		I_S	3	
Maximum Power Dissipation	T_A = 25°C	P_D	3	W
	T_A = 100°C		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	−55 to 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Case	R_{thJC}	40	°C/W

Notes:
a. Drain current limited by package construction.

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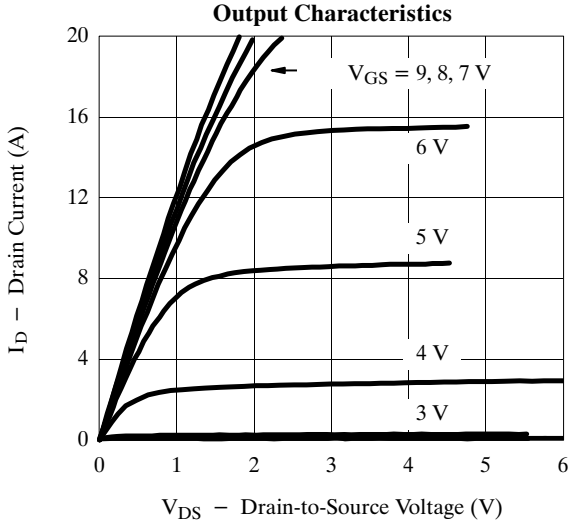
Specifications (T_J = 25°C Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Max	Unit
Static					
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0 V, I_D = 250 µA	20		V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	1	3.5	
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V		±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16 V, V_{GS} = 0 V		10	µA
		V_{DS} = 16 V, V_{GS} = 0 V, T_J = 125°C		25	
On-State Drain Current[b]	$I_{D(on)}$	V_{DS} = 10 V, V_{GS} = 10 V	7		A
Drain-Source On-State Resistance[b]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 3 A		0.1	Ω
		V_{GS} = 4.5 V, I_D = 1 A		0.2	
Forward Transconductance[b]	g_{fs}	V_{DS} = 15 V, I_D = 3 A	2		S
Dynamic					
Input Capacitance[a]	C_{iss}	V_{GS} = 0 V, V_{DS} = 16 V, f = 1 MHz		500	nC
Output Capacitance[a]	C_{oss}			300	
Reverse Transfer Capacitance[a]	C_{rss}			125	
Total Gate Charge[a, c]	Q_g	V_{DS} = 10 V, V_{GS} = 10 V, I_D = 5 A		30	
Gate-Source Charge[a, c]	Q_{gs}			5	
Gate-Drain Charge[a, c]	Q_{gd}			8	
Turn-On Delay Time[c]	$t_{d(on)}$	V_{DD} = 10 V, R_L = 2 Ω I_D ≅ 3 A, V_{GEN} = 10 V, R_G = 6 Ω		30	ns
Rise Time[c]	t_r			35	
Turn-Off Delay Time[c]	$t_{d(off)}$			70	
Fall Time[c]	t_f			30	
Source-Drain Diode (T_C = 25°C)					
Pulsed Current	I_{SM}			3	A
Diode Forward Voltage[b]	V_{SD}	I_F = 3 A, V_{GS} = 0 V		1.6	V
Reverse Recovery Time	t_{rr}	I_F = 3 A, di/dt = 100 A/µs		100	ns

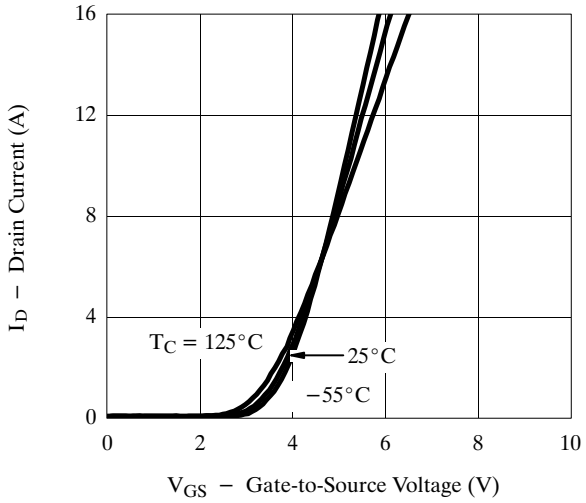
Notes:
a. Guaranteed by design, not subject to production testing.
b. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2%.
c. Independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)

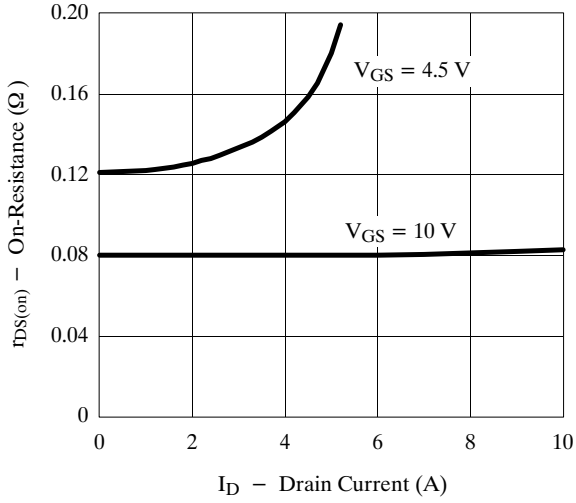
Output Characteristics



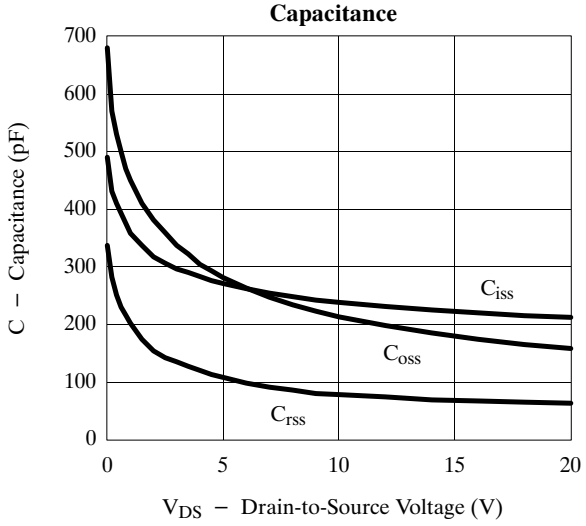
Transfer Characteristics



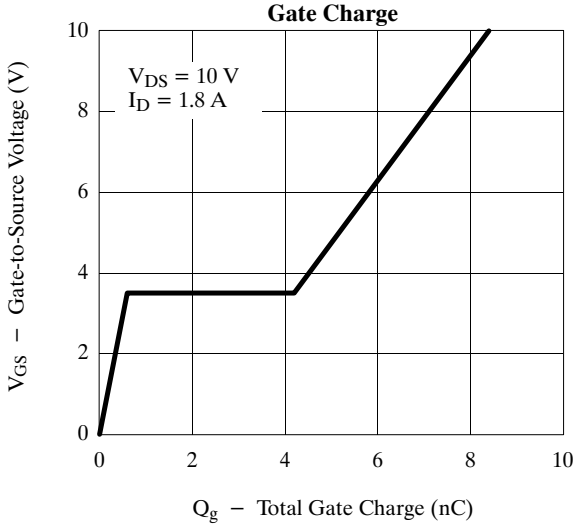
On-Resistance vs. Drain Current



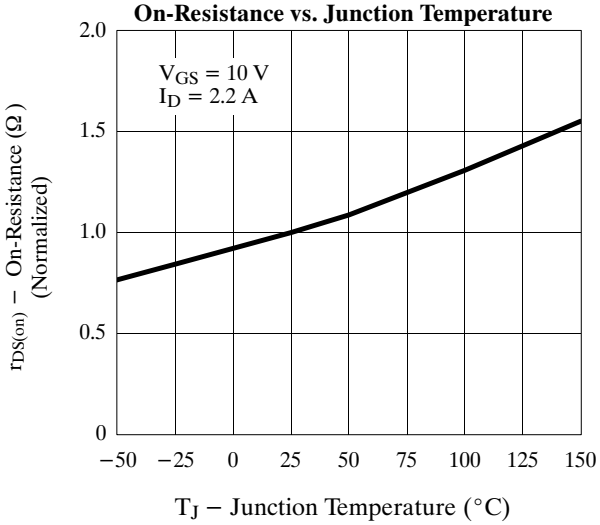
Capacitance



Gate Charge



On-Resistance vs. Junction Temperature



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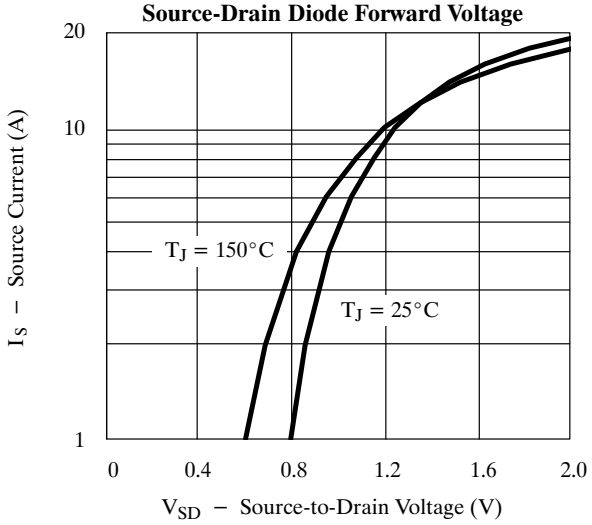
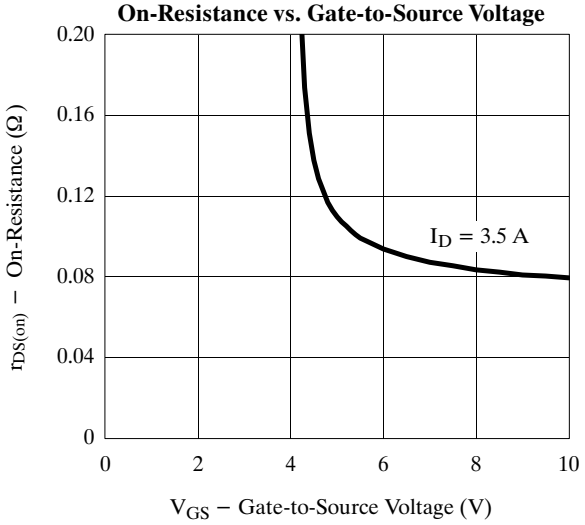
Typical Characteristics (25°C Unless Otherwise Noted)

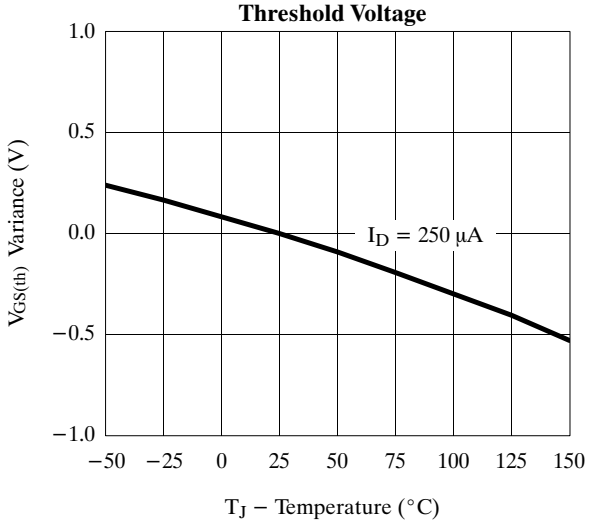
Source-Drain Diode Forward Voltage



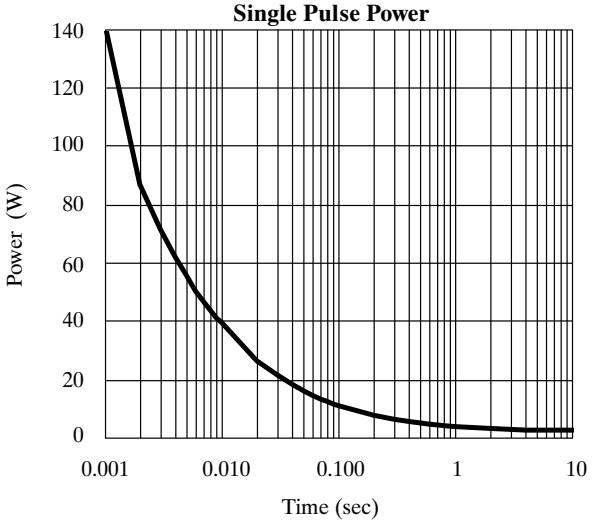
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient